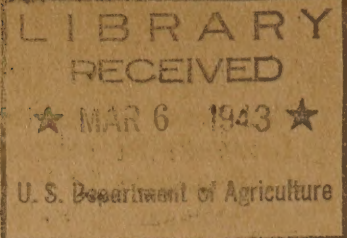


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SEED TREATMENT AN AID IN PRODUCING MORE PEANUTS

A new practice that peanut growers are finding increasingly helpful in improving acre yields of this important wartime crop is seed treatment. This is because treated seed usually comes up better and gives more uniform stands of plants than does untreated seed.

More Peanuts Needed

The Government is asking for 5½ million acres of harvested peanuts in 1943, an increase of 49 percent over the 1942 acreage and 187 percent over 1941. Not only is more acreage needed but more bushels per acre must be produced. The use of good, carefully shelled, properly treated seed will help give larger acre yields.

Many Poor Stands in 1942

With the call for more peanuts in 1942 southern farmers patriotically responded, nearly doubled the total acreage, and increased production from 1,476,845,000 pounds in 1941 to 2,504,440,000 pounds. As was to be expected, with such rapid expansion, unforeseen difficulties occurred. One of the most common troubles was failure to get satisfactory yields because of poor stands of plants.

The August 1, 1942, U.S.D.A. Crop Report stated: "Poor germination of seed necessitated considerable replanting and resulted in uneven stands in some sections! Numerous instances were reported throughout the South where the "come up" was so bad that fields had to be planted again, seeded to some other crop, or even abandoned.

A survey of one county revealed that more than 200 farmers had less than half a stand from the first planting, necessitating plowing up and planting over. None of the peanut seed planted in these fields had been treated.

Neither the peanut growers nor the Nation can afford to have this experience repeated. Fortunately, experimental evidence, although not as yet abundant, is consistent and convincing as to the need for and value of seed treatment, particularly of machine-shelled seed.

Seed Treatment Improves Stands and Yields

The Georgia Experiment Station has been experimenting with peanut seed treatment for several years. In 1940, increases in yields of treated over untreated Spanish peanut seed were obtained, ranging from 7 percent for hand-shelled seed to 29 percent for machine-shelled. In 1942, significant increases in yield of nuts and hay were obtained by treating machine-shelled Spanish seed.

In North Carolina Agricultural Experiment Station tests in 1941, low-germinating seed was used, and it showed an average emergence, for untreated seed, of 23 percent, as compared with 60 to 65 percent for seed treated with the most effective chemicals tried. In the station's 1942 experiments, at least four materials out of several tried, gave highly significant increases in emergence.

Forty-nine carefully conducted field tests, run on farms in Georgia and Virginia in 1942 by members of the research staff of the Bayer-Semesan Co., showed

increases in emergence of treated seed ranging all the way from 3 to 200 percent (average 36 percent), a third more plants from treated seed. Such substantial differences in stand cannot fail to bring definite increases in yield.

Treatment of Machine-Shelled Seed Especially Necessary

All the evidence from experimental trials shows that fields planted with untreated machine-shelled seed, as a rule, sustain greater losses from poor stand than those planted with hand-shelled seed. Hence, protective treatment gives more marked benefit with machine-shelled seed. Machine shelling, apparently, results in seed-cost damage or other mechanical injury which makes seed more susceptible to attack by rot-causing organisms. Treatment with a fungicidal dust protects against such attack.

The Georgia station tests of 1942 showed untreated machine-shelled Spanish seed germinating 67 percent as compared with 85 percent for untreated hand-shelled. When the machine-shelled was treated, germination went up to 89 percent.

In Bayer-Semesan Co.'s 13 farm tests with Spanish peanuts in Georgia in 1942, machine-shelled stands were increased by treatment, on an average, about 38 percent. Even with unshelled Spanish seed stock in 7 farm trials, stands from treated nuts were about 18 percent higher than the checks. In the same State, in 12 experiments with the North Carolina Runner variety, stands were increased about 103 percent for machine-shelled and 20 percent for hand-shelled seed.

In the company's Virginia trials, with machine-shelled peanuts of various types the average increased stand produced by treated seed on 8 farms was 20 percent more than the checks. In 9 tests with hand-shelled seed of similar varied types, the increased stand of treated over untreated was 8 percent.

Under ideal germination conditions with high-quality, hand-shelled seed, seed treatment may be of little benefit, but it is always good insurance against unfavorable conditions.

Dusts to Use

1. Arasan, manufactured by the Bayer-Semesan Co., Wilmington, Del., a new organic sulfur compound, the active constituent of which is 50 percent tetramethyl thiram disulfide, seems at present to be one of the safest and most efficient chemicals to use on peanut seed. It gave excellent results in Georgia, North Carolina, and Virginia in 1942.

2. 2% Ceresan, 2 percent ethyl mercury chloride, also manufactured by the Bayer-Semesan Co., has been tried for a longer time and is known to be highly effective. It is somewhat at a disadvantage in that it has been reported to have injured seed (1) under dry soil conditions or (2) when applied in excess dosages. Overdosage must be avoided.

The use of New Improved Ceresan, 5 percent ethyl mercury phosphate, is not advisable, as severe seed injury has been found to occur from its use with peanuts.

3. Sporgan, tetra chloro-parabenzquinone, made by the U. S. Rubber Co., 1230 Sixth Avenue, New York, is a third seed-treating dust that has shown up promisingly in a number of tests, without evidence of injury.

Dosage

The manufacturers' recommendations should be followed. All three of the suggested materials appear to be effective at the rate of 2 ounces of Arasan or 3 ounces of 2% Ceresan or Spergon per 100 pounds of shelled seed.

How To Treat

Peanut seed should be treated as soon after shelling as possible, in the opinion of investigators working with peanuts. A barrel, box, or oil-drum mixer of the home-made, rotary type, is ideal for small or average growers. A thorough job of treating should be done. Arasan and Spergon are not volatile, and so each seed must be completely covered, to get maximum protection. Turn the rotary treater at the rate of about 30 turns per minute for 5 to 7 minutes. Plans for making home-made rotary treaters may be obtained from county agents or State extension services.

It is not advisable to try to treat by any shoveling or raking method.

Automatic, commercial seed-treating machines are more practical for treating large amounts of seed. Any seed-treating equipment suitable for cottonseed can be adjusted to handle peanuts.

Gravity treaters, such as the Minnesota Seed Grain Treater, are not advised for peanuts, as they are likely not to mix the seed and the nonvolatile dusts sufficiently.

Seed treated with Spergon can be inoculated if seed is sown within 4 hours after inoculation.

Use Best Seed

Reports based on the experience of different workers strongly indicate that:

No. 1 seed gives best results.

Shelled seed usually gives better and more economical stands than unshelled.

Hand-shelled seed gives better stands than machine-shelled.

Freshly shelled seed usually gives better results than old shelled.

Shriveled, off-shape and discolored seed and trash should be picked out.

Seed shelled in advance of planting will probably keep better if treated.

Stored treated seed should be kept well ventilated in loosely woven sacks and in a dry place.

Costs

The cost of treatment is very slight - not more than 10 to 20 cents per 100 pounds of seed for materials. The actual field records show that it pays well and is exceedingly cheap insurance of stands. Quotations on retail prices available

in January 1943 were as follows:

Arasan - Probably about \$1.15 to \$1.30 per pound depending on quantity used.

2% Ceresan - \$0.52 to \$0.75 per pound, depending on quantity used.

Sperton - \$1.53 to \$2.16 per pound, depending on quantity used.

Precautions

Treatment should be done outdoors or in a well-ventilated building and needless dust or fumes prevented. None of these dusts should be inhaled. Persons working in the dust for any length of time should wear a dry filter dust mask or fume mask. The dusts should not be handled with bare hands. Dusts containing mercury should be especially guarded against. Treated seed should be kept away from children and livestock. Treated seed should be used for planting purposes only. It should not be sold to oil mills or used for feed. Surplus treated seed should be destroyed.

Custom or Community Seed-Treating Services

Many growers, especially those who have their seed shelled by machine at oil mills or other places, will find it profitable to have their seed treated for them. Operators of these establishments will be rendering a service by setting up equipment to do custom treating for local farmers. Most of the commercial equipment used by ginners and operators for treating cottonseed can be adapted to peanuts.

Arrangements should be made to make the best use of treating machines that are now available. Farmers in a community may often help each other save labor and expense by arranging for cooperative use of a treating machine which one of them may own or which may be purchased cooperatively.

Order Chemicals Well in Advance

All the chemicals recommended are reported to be available for use on peanut seed in 1943. However, peanut seed treatment is a new practice, and dealers will find it difficult to estimate the extent and location of the demand. In order to insure adequate supplies of treating materials, growers or cooperative associations should place orders with their dealers early. It is important that all agencies aiding in the peanut production drive emphasize this matter of getting the treating material ordered and on hand as early as possible to insure against last-moment difficulties from wartime shortages or shipping problems.

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